

## PUBLIC DEBT SUSTAINABILITY ANALYSIS: EU CASE

**Nicolescu Cristina**

*West University of Timișoara Faculty of Economics and Business Administration*

**Pirtea Marilen**

*West University of Timișoara Faculty of Economics and Business Administration*

**Boțoc Claudiu**

*West University of Timișoara Faculty of Economics and Business Administration*

*The global crisis has caused a serious fiscal deterioration that leaves the world economy with serious challenges. In many developed markets as well as in a few emerging markets (Emerging markets) public finances have already become, or are at least at risk of becoming, unsustainable. Commonly, public debt sustainability is defined as a sovereign's ability to service debt without large adjustments to public revenue and/or expenditure and without ever-increasing public-debt-to-GDP ratios. Hence, this definition refers to both a country's ability and willingness to repay its debt. We also have to add the fact that there isn't an universal accepted definition of fiscal or debt sustainability.*

*In light of the growing public debt, the issue of debt sustainability has increasingly attracted attention. In this paper we analyse public debt sustainability scenario in EU economies. At least half of the EU countries will have to implement stringent fiscal consolidation programmes over the next few years in order to prevent already high public-debt-to-GDP ratios from a further significant rise, also the case of Romania. However, drastic fiscal policy adjustment may be not feasible in the short term and hence public debt is likely to grow further.*

*In some scenarios the public-debt-to-GDP ratio is predicted to soar to 133% in 2020, from just over 100% in 2010. By contrast, nearly all EM countries, including major economies, appear to be well positioned to stabilise or even outgrow their current debt ratios without drastic fiscal adjustment.*

*Institutional improvements may help European countries to maintain fiscal credibility. In light of the future fiscal challenges, many European governments may introduce new or more effective national debt limits, similar to those put in place in the past with good results by some Emerging markets. Such institutional reforms could help to insulate fiscal policies from political pressure and to anchor financial market expectations.*

*Keywords: public debt, fiscal policy, fiscal sustainability, GDP, fiscal consolidation.*

*JEL Codes: H63, H30, H69, H60, H59.*

### **I. Introduction**

Most economists, policymakers and international financial institutions called for expansionary monetary and fiscal policies to mitigate the adverse effects of the global crisis. So far, bold and coordinated policy actions have successfully prevented a collapse of the world financial system and the global economy.

Nearly all major developed markets as well as some emerging markets have run counter-cyclical fiscal policies, either via automatic stabilisers or through discretionary stimuli. As a result, fiscal accounts have worsened significantly since 2007 not only in Developed markets but also, though to a lesser extent in emerging markets. Fiscal accounts were hit particularly hard in Developed markets with bursting housing market bubbles as well as in countries with already high pre-crisis debt burdens.

Regarding the average GDP-weighted public-debt-to-GDP ratio in Developed markets and Emerging markets, it is obvious that many governments have moved into unexplored territory over the past couple of years. While the GDP-weighted EM public debt stock climbed to around 44% of GDP in 2009 from just 35% in 2006, the DM debt ratio skyrocketed to around 95% of GDP from less than 80%.

Today, most Emerging markets still exhibit relatively manageable public debt levels. The current EM public-debt-to-GDP ratio is well below its late 1990s high of 55% of GDP. Contrary to Emerging markets, DM public-debt-to-GDP ratios are now higher than they were in the late 1990s, measured both on an un-weighted as well as on a GDP-weighted basis.

Since the turn of the century, public finances have worsened in particular in a few major developed markets, as underlined by the growing gap between the un-weighted (simple) and the GDP-weighted DM public debt-to-GDP ratio. Meanwhile, the gap between the un-weighted and GDP-weighted average debt-to-GDP ratio has narrowed in the EM world, indicating that no major EM has a public debt burden that is significantly above the average level of its peers.

The previous findings indicate that tail risks in public finances, as measured by the relative size of an economy, are nowadays highly concentrated in the advanced world. The nine Developed markets that face substantial consolidation needs (Ireland, Germany, the UK, the US, France, Portugal, Greece, Italy and Japan), account for around 85% of the DM sample's total GDP. However, the Emerging markets that are either subject to tangible consolidation needs (the Czech Republic, Hungary, Romania and Poland) or where past efforts to lower high public debt have to continue (Turkey, Brazil, India) account for only 29.8% of the EM's total GDP.

## II. Literature review

When analysing public debt sustainability in Developed markets and Emerging markets, it is useful to recall the basic concept of public debt arithmetics. (Eduardo(2005) and Sturzenegger (2002).)

To begin with, the dynamics of debt accumulation can be described in absolute terms as:

$$D_{t+1} - D_t = r_{t+1} \times D_t - PB_{t+1} \quad (1)$$

where:

- $D$  denotes a country's gross public debt stock,
- $r$  captures the real interest rate paid on public debt outstanding, and
- $PB$  represents the government's primary balance, i.e. the government's fiscal balance before net debt interest payments.

The above identity can also be expressed in percent of GDP, which puts the public debt stock in relation to the size of the economy (government's underlying potential tax base):

$$\frac{D_{t+1}}{GDP_{t+1}} = (1 + r_{t+1}) \times \frac{D_t}{GDP_t} \times \frac{GDP_t}{GDP_{t+1}} - \frac{PB_{t+1}}{GDP_{t+1}} \quad (2)$$

After rearranging we obtain:

$$d_{t+1} = \left( \frac{1 + r_{t+1}}{1 + g_{t+1}} \right) \times d_t - pb_{t+1} \quad (3)$$

where:

- $d$  denotes the public debt stock and
- $pb$  the primary budget balance (both in percent of GDP).
- $g$  represents the annual real GDP growth rate.

As shown in equation (3), the current public debt stock depends on the past year's debt stock as well as on today's real interest rate, real GDP growth rate and primary balance. The higher the real interest rates, the lower real GDP growth and the lower the primary balance, the more the

public-debt-to-GDP ratio rises. In other words, strong real GDP growth, low real interest rates and sound fiscal policies (as reflected by primary surpluses) are necessary to avoid ever-rising public debt stocks or to lower public debt to more sustainable levels.

Often it is important to know what primary balances governments have to achieve in order to stabilise their current public-debt-to-GDP stocks under given macroeconomic and financial conditions, i.e. under the prevailing economic growth and interest rates.

It can be shown from (3) that the required primary balance to stabilise the debt-to-GDP ratio, denoted as  $pb^*$ , depends on the differential between the real interest rate  $r$  and the real GDP growth rate  $g$  as well as on the prevailing debt level in year  $t=0$ :

$$pb^* = \left( \frac{r-g}{1+g} \right) \times d_0 \quad (4)$$

Highly indebted sovereigns may have to achieve more than stabilisation of their current public-debt-to-GDP ratios. Instead, more ambitious fiscal improvements are needed to put public debt dynamics on a sounder footing.

In order to lower the current debt-to-GDP ratio to a target level  $d^*$  over the next  $T$  years, the required permanent primary balance  $pb^{**}$  is given by:

$$pb^{**} = \frac{d_0 \times \left( \frac{1+r}{1+g} \right)^T - d^*}{\sum_{j=1}^{T-1} \left( \frac{1+r}{1+g} \right)^j} \quad (5)$$

### III. Methodological framework

In many countries rising public-debt-to-GDP ratios imply the risk of increasing pressure on sovereign financing capacity, creditworthiness and hence ratings. A “positive” shock would be triggered by unexpectedly strong but well-balanced fiscal consolidation. Should economies show signs of a more durable recovery, or – more gloomily – should market and rating agencies’ pressure intensify, such a scenario would not look that far-fetched. But how much adjustment is needed? This depends on the current and desired debt level. As “desired” debt targets we use three different benchmarks:

(1) **Stabilising current debt levels**, as preventing further increases could send a positive signal about fiscal prudence.

(2) **Pre-crisis (2007) debt levels**, to be attained in 5-10 years’ time.

(3) **Prudential public-debt-to-GDP benchmarks** (of 60% for DMs and 40% for EMs), to be attained over a 10-year period.

To stabilise debt at 2011 levels, EM countries – on aggregate – could run a primary fiscal deficit of 1.2% of GDP each year. For the past five years, these countries have run a primary surplus of 0.8%, so the stabilisation of debt appears to be easily manageable. Of course, there are country-by-country differences. Turkey and Brazil, for instance, would need to deliver a substantial permanent primary surplus to stabilise their debt. However, in both EMs the required primary surpluses are largely in line with what was achieved over the last cycle.

In the past decade, DMs ran an average primary deficit of 1.2%. Again, the country-by-country analysis shows significant differences and some silver lining. For example, crisis-struck countries like Spain, the UK and the US could stabilise their 2011 public-debt-to-GDP ratio by running only moderate permanent primary surpluses. Nevertheless, the gap between the primary balance

achieved over the last cycle and the debt-stabilising primary balance indicates that many DM and a few EM governments have to significantly alter their fiscal policy stance. This is also true for countries that could continue to run primary deficits to stabilise debt levels. In Japan, Greece, Slovakia, Portugal, the US, Romania, Hungary, the UK, the Czech Republic, Ireland and Poland (consolidation needs by decreasing size) the debt-stabilising permanent primary balance is at least one percentage point above the average figure of the last cycle.

Lowering debt to pre-crisis levels: here we discuss the permanent primary fiscal balances required to bring current (2011) public-debt-to-GDP ratios back to pre-crisis levels (2007) within five or ten years' time.

Nearly all DMs (16 out of 17, with Switzerland as exception) have to achieve constant primary surpluses of 1-12% of GDP in order to lower public-debt-to-GDP ratios to pre-crisis levels over the next five years. If spread over ten years, the required adjustment ranges from 1-6% of GDP for 13 out of 17 DMs. The consolidation needs are largest in Japan, Ireland, the US, the UK, Greece, Portugal, Slovakia, France, Spain and Germany. This holds true in absolute terms and/or relative to what has been achieved over the past years.

Contrary to most DMs and in line, debt reduction to 2007 levels does not appear challenging for most EMs, according to the average primary balance achieved over the last cycle. The only exceptions are Poland, the Czech Republic, Hungary and Romania. These countries need a tangible improvement on their primary balances to reach their pre-crisis indebtedness.

However, pre-crisis indebtedness is not necessarily a meaningful benchmark for the analysis of debt sustainability. Especially for those countries where the difference between the public debt levels in 2011 and 2007 is small and/or where the pre-crisis debt stock was already elevated, the focus on pre-crisis levels may not show the true sacrifice required to cut public-debt-to-GDP ratios back to more sustainable levels. Thus, we also calculate the permanent adjustment needed on the primary balance to lower public debt to benchmarks considered prudent.

As benchmarks and in line with the IMF's calculations we use public debt- to-GDP ratios of 60% and 40% for DMs and EMs, respectively. Other benchmarks are also perceivable and economic theory offers no widely accepted public-debt-to-GDP limits.

Although the 60% limit for DMs (also part of the Maastricht treaty) has some theoretical justification, it could be considered arbitrary. For EMs we use a limit of 40% of GDP, which is often suggested as a critical external debt limit. At least up to now there are several reasons that support this discount for EMs (e.g. more unfavourable debt structure, higher exchange rate and market access risks).

In a sample only 5 of 17 DMs (Australia, Slovakia, Switzerland, Denmark and Sweden) have public-debt-to-GDP ratios of below 60%. In fact most DM countries, including major economies and most major EMU and EU countries, have debt stocks well above this benchmark. Germany, the UK, the US, France, Portugal, Belgium, Greece and Italy would have to achieve constant annual primary surpluses of 2.5-8% of GDP over the next ten years to reach a public-debt-to-GDP ratio of 60%.

Moreover, the debt reducing primary balances are extremely demanding (with the exception of Belgium and Canada) in relation to past averages. Compared to the last decade these countries will have to improve their primary balances by 2-7 percentage points.

By contrast, in the EM world there seems no widespread need for sharp fiscal consolidation. Nevertheless, fiscal challenges in the EMs should not be underestimated. Within a sample only ten out of 21 EMs have public-debt-to-GDP ratios below the 40% benchmark.

However, compared to DMs the efforts required to reach prudential levels look much more manageable. Only Romania, Hungary, Poland and the Czech Republic would have to alter their fiscal policy stance substantially. However, these EMs enjoy the prospect of joining EMU and hence of migrating to the DM segment. As EMU members they would be able to issue public

debt in a global reserve currency. Thus, the 60% debt limit, well within reach except for Hungary, appears to be a more appropriate benchmark to them.

#### **IV. Results**

We want to stress that public debt ratios above 60% (40%) of GDP do not necessarily imply a crisis. Many DMs and EMs have not defaulted despite having borne relatively high debt. However, debt ratios well above these limits and/or on a rising trend certainly increase the risk of market repercussions. At the moment, this applies in particular to DMs. Moreover, the outlook for public debt levels above the 60% benchmark, on the rise and substantially above past levels in a lot of DMs has several implications.

Firstly, record volumes of sovereign issuance will have to be absorbed. This holds true even if some consolidation will be achieved. Thus, regulatory pressure on FIs to absorb this issuance might increase. Moreover, countries with public debt well above benchmarks might suffer from crowding-out effects or may have to accept substantially higher risk premium. Although for some DMs (including EMU members) such risk reprising may be desirable from an economic point of view (i.e. to enforce fiscal discipline), it will complicate the task of preserving public debt sustainability in the short run.

Secondly, the credibility of institutional arrangements like national debt limits in DMs or the EU's Maastricht treaty as well as the Stability and Growth Pact will be under pressure for years.

Thirdly, the fiscal challenges in many DMs may revitalise the longstanding debate on the establishment of ex-ante instruments to deal with sovereign debt problems. Concepts to enforce an insolvency law for sovereign debtors or to establish the IMF as a sovereign bankruptcy trustee (traditionally developed in times of EM crisis) could gain more acceptance. As the design of a potential EMF will have to be part of the current European institutional framework, its design and funding are likely to be partially based on the Maastricht framework. Thus, countries with a public-debt-to-GDP ratio higher than 60% and/or fiscal deficits above 3% of GDP would have to contribute to its funding. The debt target analysis clearly shows that all major EU/EMU members would be contributors for many years. This would help to equip such an institution with adequate capital.

Fourthly, the debt target analysis gives some tentative insight on potential pressures on DM sovereign creditworthiness in the absence of credible consolidation plans along the lines of the sketched requirements. Failure to consolidate could have serious implications for rated quasi-sovereign and private sector entities.

The ultimate bearer of the sketched adjustment costs (e.g. through higher income taxation) is the population, i.e. the electorate of a country. Thus, the quality of policymaking will be crucial in the years ahead. Being aware of this, governments may want to "ring fence" fiscal consolidation from political pressure using (more) effective institutional arrangements such as limits on public indebtedness.

#### **V. Conclusions**

In many DMs and a few EMs, one should not forget that expansionary policies mitigated the adverse effects of the global crisis and very likely prevented a collapse of the global financial system and the world economy.

At the moment, it appears that a fiscal exit can take place only gradually. Future scenarios as well as debt target analysis highlight that public debt has become, or is at least at the risk of becoming, unsustainable in many DMs but only in a few EMs. At least in theory, most EMs could afford to run looser fiscal policies, for instance by extending counter-cyclical fiscal policies in order to smooth the fall-out from the global crisis.

Moreover, moderate initial debt levels put them in a relatively comfortable position to stabilise or even outgrow their debt-to-GDP ratios. Only austere and bold fiscal policy adjustments after the worst of the crisis is over, which may lay the foundations for higher potential real GDP growth, lower real interest rates and improved fiscal accounts, would significantly alter the presented public debt dynamics. For some countries the permanent primary balances required to stabilise or even reduce public-debt-to-GDP ratios look very ambitious.

Nevertheless, the required economic and political efforts to consolidate public finances might be much greater than in the past. Overall, medium-term fiscal consolidation is more likely to occur in a supportive macroeconomic environment. During an economic downturn or recession, rising tax rates may not suffice to substantially increase the tax-to-GDP ratio.

Should consolidation fail, policymakers in DMs and some EMs may be tempted to look for other ways to fix the fiscal damage. Either they could tolerate a substantial acceleration in CPI inflation to inflate public debt and/or they risk severe adjustments in the real effective exchange rate. Such adverse scenarios should not be disregarded. The assumption that major macro issues cannot go wrong in the DM world (including EMU) has to be scrapped in the aftermath of the global crisis while this time EM, not DM, economies are the ones in the lead to keep public indebtedness sustainable.

## VI. Notes

(1) This work was supported by the project "Post-Doctoral Studies in Economics: training program for elite researchers - SPODE" co-funded from the European Social Fund through the Development of Human Resources Operational Programme 2007-2013, contract no. POSDRU/89/1.5/S/61755

## VII. References

### Articles

1. Becker, Sebastian. "Is the next global liquidity glut on its way?". *Current Issues*. Deutsche Bank Research, July 30, 2009.
2. Gleich, Holger. "Budget Institutions and Fiscal Performance in Central and Eastern European countries." *ECB Working Paper No. 2015*, 2003.
3. Gros, Daniel and Thomas Mayer. "Towards a Euro (pean) Monetary Fund". *CEPS Policy Brief No. 202*, 2010.
4. Koen, Vincent and Paul van den Noord. "Fiscal Gimmickry in Europe: One-Off Measures and Creative Accounting". *OECD Economics Department Working Papers, No. 417*, 2005.
5. Lanzeni, Maria Laura and Veronica Vallés (2009). "EM anti-crisis measures: Separating the wheat from the chaff". *Current Issues*. Deutsche Bank Research. June 16, 2009.
6. Ley, Eduardo. "Fiscal (and External) Sustainability". *IMF*, 2005.
7. Reinhart, Carmen M. and Kenneth S. Rogoff. "Growth In A Time Of Debt". Draft Version as of. *Working Paper*, December 31, 2009
8. Reinhart, Carmen M., Kenneth S. Rogoff and Miguel A. Savastano. "Debt Intolerance", *NBER Working Paper Series*, 1999, [www.nber.org/papers/w9908](http://www.nber.org/papers/w9908).
9. Schick, Allen. "The Role of Fiscal Rules in Budgeting". *OECD Journal on Budgeting*. Volume 3, No. 3, 2003.
10. Sturzenegger, Federico. "Toolkit for the Analysis of Debt Problem Emerging markets". Universidad Torcuato Di Tella, 2002.

### Official reports

11. Deutsche Bundesbank. "Monthly Report July 2001. Real Interest Rates: Movements and Determinants", 2001.
12. International Monetary Fund. "World Economic Outlook September 2003. Public Debt in Emerging Markets". Washington D.C., 2003.

13. International Monetary Fund. "World Economic Outlook April 2009. Crisis and Recovery". Washington D.C., 2009.
14. International Monetary Fund. "World Economic Outlook Update. A Policy-Driven, Multispeed Recovery". Washington D.C., January 26, 2010.
15. International Monetary Fund. "Global Financial Stability
16. Report, GFSR Market Update. Financial System Stabilised, but Exit, Reform, and Fiscal Challenges Lie Ahead". Washington D.C., January 26, 2010.